

ABSTRACT**SOLID STATE STORAGE DEVICE****AND DATA STORAGE METHOD**

An MRAM solid-state storage device is disclosed having at least one array of magnetoresistive storage cells. The 10 MRAM device includes a Reed-Solomon encoder arranged to encode original data to generate one or more codewords of length B symbols including 2T check symbols, using a generator polynomial G(x) of the form:

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$$g(x) = (x + \alpha^L)(x + \alpha^{L+1})(x + \alpha^{L+2}) \dots (x + \alpha^{L+2T-1})$$

where $0 \leq L < 255$ and $T = 16$. This generator polynomial allows robust and reliable data storage despite limitations of current manufacturing techniques for MRAM devices, and 20 also allows a relatively efficient physical device layout.

[Figure 1]